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SUPPLEMENTARY REPORT

ON THE

MORTALITY EXPERIENCE

OF THE

Scottish Equitable Life Assurance Society

From 1831 to 1864

BEING A PERIOD OF THIRTY-THREE YEARS

WITH TABLES EXHIBITING

THE LIVES AT RISK, AND THE AVERAGE MORTALITY OF
MALES AND FEMALES AT EACH YEAR OF LIFE

ALSO

THE AVERAGE ANNUAL MORTALITY FROM EACH CAUSE OF
DEATH AT SEVEN DECENNIAL PERIODS OF LIFE.

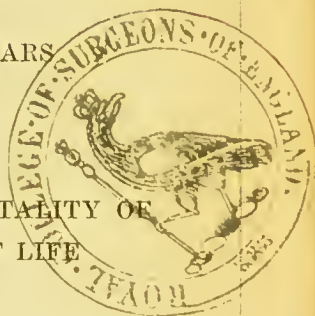
SUBMITTED TO THE BOARD OF DIRECTORS

BY WILLIAM ROBERTSON, M.D., F.R.S.E.

MEDICAL OFFICER TO THE SOCIETY.

Subscribed.

1866.



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SUPPLEMENTARY REPORT.

IN the Report which I had last year the honour of submitting to the Directors of the Scottish Equitable Life Assurance Society, the Mortality experienced during the first thirty-three years of the Society's existence was reviewed. Attention was, however, almost exclusively directed to the relative frequency with which the various causes of death had operated, and to the ages at which the deaths from each cause had occurred. At the time when that Report was framed, I had not the means of contrasting the 'Lives at Risk' with the deaths recorded, nor, consequently, of deducing with accuracy the actual Mortality at each age, and from each disease or group of diseases. It was stated, that 'were it possible to exhibit in contrast, year by year, the number of "lives at risk" at each age, and the number of deaths occurring at each age, it would very surely be found that the mortality experienced by the Society had obeyed the same law as that observed in the general population; or rather, that the exclusion of such lives as were manifestly "bad" or "hazardous" had rendered the rate of mortality in each year more favourable to the Society than the rate upon which its calculations are based.'¹

The opinion thus expressed was in truth a very safe one, for it has long been well understood that the rate of mortality exhibited in Dr. Price's Northampton Table is far in excess of

¹ See Report 1865, pp. 3 and 4.

that experienced by Assurance Societies, or even by the general population of England, according to the Registrar-General's statistics.

Dr. Farr, Mr. Samuel Brown, and other eminent authorities on all that relates to Life Assurance, were pleased to express a wish that the number of the 'lives at risk' at each age should be ascertained and compared with the deaths recorded in the Medical Report, believing that results interesting, in an actuarial point of view, would thus be obtained. The Manager of the Society, without whose kind co-operation the accompanying Tables could never have been constructed, was, of course, anxious to assist in instituting such a comparison, and after causing the 'cards,' by aid of which the Report of 1865 was drawn up, to be checked by means of reference to the books of the Society, placed at my disposal another set of 'cards,' embracing the whole experience of the Society down to 1st March 1864. The subsequent computation was conducted on the principles briefly described by Mr. Spens in the Introduction to the Mortality Experience Tables of the Scottish Amicable Life Assurance Society.¹ As a preliminary measure, all policies issued on joint lives, and double or multiple policies on single lives, were dealt with; the years of life being obtained from the cards, and recorded in such a manner as to prevent the possibility of the same year of life being tabulated as twice 'at risk.' The extent of the correction thus secured may be estimated from the fact that, while the total of numbered policies was about 14,500, it was found that 3147 of them had been distributed among only 1390 individuals. The cards relating to policies on one life only were last examined. Throughout the whole work, separate account was taken of the male and

¹ Tables of the Mortality Experience of the Scottish Amicable Life Assurance Society, 1826 to 1860, pp. 2, 3.

female lives ; and it was from the final union of these statements that the Tables P. and L., at pages 18-23, headed 'Persons,' were constructed.

The numbered policies examined in the course of the present investigation amounted to 14,500. Adding for policies which include two or more lives under the same number, say 120, the number of policies becomes 14,620. Deducting 1757 for double and multiple risks on the same life, and 130 for policies never completed, or which were only for a few days 'at risk,' the number of individual lives of which the Society has had experience becomes $14,620 - 1757 - 130 = 12,733$. The years of life embraced in the Tables amount to 126,672 ; and the average period during which each individual life has been 'at risk' is consequently about 9.948 years. The number of males who have been 'at risk,' I estimate, from calculation, at 11,546 ; the number of females at 1187. Each male has been 'at risk' on an average 10 years ; each female, 9.44 years.¹

In the course of the scrutiny of the Society's experience which has just been concluded, it was found that two deaths (occurring at medium ages in males, one from Brain Disease, the other from General Paralysis) had been twice entered in the Tables of the Medical Report of 1865 ; and that 9 deaths of males, not having been recorded in the usual manner, had escaped enumeration. The corrected numbers are of course used in the Tables now presented. It need only be added, that in the new Tables every death occurring among the members of the Society down to 1st March 1864, is included, and that the corresponding 'years at risk' relate to every individual who,

¹ The numbers in this paragraph are not absolutely correct, and could not be made so without a troublesome supplementary computation, which it is deemed unnecessary to undertake. The average experience of each life is, however, certainly *not under* 9.5 years, and is probably much nearer 9.948 years, as stated in the text.

up to the same period, had been for 21 days a member of the Society.

Those familiar with the details of Life Assurance will not require any explanation beyond what is conveyed in the headings of the several Tables, and in the prefatory remarks regarding their construction. It would be unbecoming in one whose special province it is to deal with matters strictly medical, to intrude any comments on their possible application to the business of the actuary. It may, however, be permissible to offer, by way of conclusion, a few observations on the Comparative Value of Male and Female Lives, and on the Intensities of certain Diseases, as illustrated by the Society's experience during thirty-three years.

It will be seen that during the decennial period of life commencing at 25 and terminating with 34, the mortality of females has been found to be considerably in excess of that of males assured, and even slightly to exceed the mortality of females in all England, as stated in Dr. Farr's most recent and valuable publication, the English Life Table, No. 3. When it is considered that Assurance Offices have in their favour the benefit of 'selection,' this mortality among females is at first sight a little startling. It is not here pointed out for the first time; on the contrary, it is repeatedly alluded to by Dr. Farr in his Reports to the Registrar-General of England,¹ and is one of the most remarkable results brought out by the well-known Tables of the United Experience of Seventeen Life Offices.² It is, however, at variance both with popular belief and with Mr. Finlaison's Tables, employed in the sale of Government Annuities.³ Unquestionably it has been observed in the experience of the

¹ *Vide, e.g.*, Fifth Annual Report, 1843, p. 338.

² Tables exhibiting the Law of Mortality, etc., 1843, p. xi., and Table I. (1.) p. 44.

³ Fifth Annual Report of Registrar-General, p. 339.

Scottish Equitable, and is, I think, susceptible of satisfactory explanation. For it appears to be well ascertained that the death-rate of married women is at the earlier period of child-bearing life (and of course between 25 and 34)¹ far higher than the death-rate of males of corresponding ages ; indeed, so strong is the influence of this preponderance, that the annual mortality of all females, married and unmarried, exceeds that of all males between 25 and 34.² But, besides, the ratio of married to single females is at the child-bearing ages, and indeed at all ages, far greater among the assured than among the general population. Consequently, it need cause no surprise to find that, between 25 and 34, a higher ratio of mortality prevails among females assured than among males assured.

Of 18,469 females, aged 15 and upwards, who died in Scotland in 1861, 12,606, or about 68 per cent., were 'married or widows;' while of 2250 who died, aged 25 and under 35, 1365, or about 60½ per cent., were 'married or widows.'³

Of 173 assured females, whose deaths are recorded in the Tables of the Scottish Equitable Society, 165, or 95½ per cent., were 'married or widows;' while of 20 assured females who died, aged 25 and under 35, 18, or 90 per cent., were 'married or widows.'

These relative numbers appear sufficiently to explain the exceptionally high death-rate among the female members of this Society who have died at ages between 25 and 34, both inclusive.

As for the mortality among females at more advanced ages,

¹ Seventh Detailed Annual Report of Registrar-General in Scotland.

² English Life Table 3, p. 34.

³ See Seventh Annual Report of the Registrar-General in Scotland, in which Dr. Stark ably discusses various questions regarding female mortality: pp. xxviii. to xxxv.

the Society's Tables show it to have been decidedly lower than that of males at corresponding ages—an observation quite in accordance with the statistics of the general population.

The slight excess of the figures expressing the average annual mortality of females at all ages above the average annual mortality of males at all ages (1.544 per cent. against 1.457 per cent.), is probably due to two circumstances:—*Firstly*, to the large mortality among young married females above alluded to; *Secondly*, and *chiefly*, as I conceive, to the fact that, as a general rule, the ages of those 'at risk' have been greater among females than among males. A slight examination of the Tables in which the sexes are distinguished will serve to verify this last statement.

Whether female or male lives have, on the whole, been the more profitable subjects of Assurance, is a question which it is for Actuaries to determine, and which the data in the accompanying Tables may perhaps assist in deciding, in so far as the experience of this Office is concerned.

In the Table exhibiting the Intensity of the various causes of death, it has been deemed unnecessary to distinguish the sexes, the number of female deaths being comparatively small and insufficient for satisfactory separate tabulation. The classification adopted is the same as that followed in the Tables of the Report of 1865, and, except in a few particulars there described,¹ does not materially differ from that of Dr. Farr. As it is believed that Table (I.) may be usefully contrasted with the short tables contained in Dr. Fleming's excellent Report,² and with the interesting statistics of the English Registrar-General,³ de-

¹ See Report, 1865, pp. 5, 6, and Note to Table A.

² 'Medical Statistics of Life Assurance,' etc., by J. G. Fleming, M.D., Glasgow. 1862.

³ Especially Table III. and Table IV. in Supplement to Twenty-fifth Annual Report, pp. viii. and ix.

cennial periods of life have been assumed, corresponding with those employed by Dr. Farr; but as the numbers 'at risk' during the early years of life are very small, it has been judged inexpedient to subdivide our first decennial into quinquennial periods, as the last-named author does in reviewing the mortality of those under 25 years of age. The first period in the Society's Table, which may be said practically to commence at 15, actually includes the Society's whole experience of lives under 25 years of age.

In regard to the Intensity of the various causes of death, it is notorious that Consumption is the disease which occasions the greatest number of early deaths among persons assured. It is, however, fortunate that the rules under which lives are admitted have the effect of diminishing the risk from this fruitful cause of mortality to little more than a half of that encountered by the general population of all England. The 'intensities' at the several decennial periods of life are as follows :

Annual Mortality from Consumption, in 100 living at each period.

	15-24.	25-34.	35-44.	45-54.	55-64.	65-74.	75-84.
All England, ¹	0·356	0·430	0·409	0·348	0·286	0·201	0·087
Scottish Equitable,	0·245	0·239	0·161	0·142	0·111	0·114	..

It will be observed that at ages above 44 the 'intensity' of Consumption is comparatively small, while after 54 it appears to be well nigh exhausted, at least among the class of the Assured. The practical conclusion suggested is, that the objec-

¹ These numbers are deduced from Table III. and Table IV., at pp. viii. and ix. of Supplement to Registrar-General's Twenty-fifth Annual Report.

tions drawn from an indifferent family history, do not apply with the same force to a Proposal of Assurance made at or after the middle period of life, as to one made by a person under 35; in short, that there are cases in which the occurrence of two, or even more, fatal cases of Consumption among the immediate relatives of a proposer need not be considered an insuperable bar to his eligibility for Assurance at the ordinary rates, if he has passed middle life, and the personal points in his history are favourable.

The Intensity of Diseases of the Nervous System follows a very different law, as the following comparative statement will make sufficiently obvious:—

Annual Mortality from Diseases of Nervous System, in 100 living at each period.

	15-24.	25-34.	35-44.	45-54.	55-64.	65-74.	75-84.
All England, ¹	0·042	0·059	0·103	0·184	0·396	0·937	1·606
Scottish Equitable,	0·184	0·112	0·214	0·317	0·498	1·529	1·099

It must be acknowledged that the Assured suffer from Diseases of the Nervous System in far higher proportion than the general population of all England, and the circumstance of the large preponderance of male lives among the Assured will go but a short way in accounting for this mortality. As has been repeatedly pointed out, a similar record is furnished by the experience of every British Office which has as yet been made public. No amount of care or of medical skill applied

¹ In this and in the former tabular statement, it is assumed that the population of all England consists of males and females in equal numbers. In the Scottish Equitable Society the female members constitute about $\frac{1}{11}$ th of all at risk.

to the selection of lives can be expected to avail in lessening the mortality from Brain Diseases. All that seems practicable is to proceed on the plan generally pursued in ascertaining the possible existence of intemperate habits, and in inquiring as to the early deaths of parents, and as to the occurrence of 'fits,' insanity, apoplexy, etc., among near relatives at ages under 60. The proclivity to Head Diseases, and to Diseases of the Digestive Organs—another class very fatal to the Assured—cannot usually be estimated at the earlier periods of life at which Proposals of Assurance are made, but may be subsequently acquired in consequence of hardships, bad habits, sedentary and unhealthy occupations, undue attention to business, and a variety of other causes, against which no amount of circumspection can protect an Office.

Although the subject of the Intensity of various causes of death among the Assured is a very inviting one, I must refrain from pursuing further, at present, any of the details which it suggests; the object of this Supplementary Report being merely to contribute for its illustration a few materials, as to the value of which it is left for members of the Actuarial and Medical Professions to form and express their own opinions.

It may be objected to such Tables as those now presented, that they rest on too narrow a basis of facts, and hence cannot warrant confident deductions as to the probable rate of mortality. But while this is admitted, it may be pointed out that they constitute the most succinct mode of stating the facts; that I have carefully avoided all arbitrary adjustments of the Society's experience; that at the medium ages the basis of facts is tolerably extensive; and that, even at the extremes of age, the observations which they record have a certain value as constituting the whole experience of a Life Office during no inconsiderable number of years. It may also be noticed that

any value which they may at present possess will become enhanced in proportion as kindred Societies are successively induced to furnish similar materials for the construction of Tables of their combined experience.

Reported by

WILLIAM ROBERTSON, M.D.

June 1866.

TABLES.

MALES.—(M.) MORTALITY EXPERIENCE of the
to 1864, being a period of Thirty-three Years ;
AT RISK ; (2.) THE DEATHS ;

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
1	3,772.46	35	.9278
2	...	...	...
3	...	...	...
4	...	...	...
5	...	...	...
6	2'	...	...	
7	3'	...	...	
8	12'	...	...	
9	21'	...	...	
10	37'	...	...	
11	49'	..	...	
12	56	1	1.786			
13	74.55	1	1.341			
14	90'	...	...	
15	109.50	...	...	
16	134'	...	...	
17	157.60	3	1.904	23,274.73	166	.7132
18	187'	...	...	
19	230.50	1	.434			
20	284.55	6	2.109			
21	358.41	1	.279			
22	484.25	4	.826			
23	648.40	4	.617			
24	833.70	14	1.680			
25	1,071.61	7	.653			
26	1,335.65	10	.749			
27	1,635.50	13	.795			
28	2,035.10	10	.491			
29	2,239.70	15	.670			
30	2,533.42	21	.829			
31	2,780.60	20	.719			
32	2,997.10	18	.601			
33	3,200.15	27	.828			
34	3,385.90	25	.738			
35	3,579.30	35	.978	38,639.05	396	1.0249
36	3,744.20	31	.828			
37	3,838.60	45	1.172			
38	3,916.15	29	.741			
39	3,979.25	44	1.106			
40	4,022.60	36	.895			
41	4,000.80	58	1.450			
42	3,907.25	41	1.049			
43	3,849.30	30	.779			
44	3,801.60	47	1.236			
C. forward,	65,686.24	597		65,686.24	597	

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY, from 1831
 exhibiting at each Year of Age—(1.) THE LIVES
 (3.) THE MORTALITY PER CENT.

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
B. forward,	65,686·24	597	...	65,686·24	597	
45	3,715·65	35	·942	30,413·35	473	1·5552
46	3,545·35	45	1·269			
47	3,414·50	39	1·142			
48	3,088·90	59	1·911			
49	3,117·05	49	1·572			
50	2,984·00	53	1·776			
51	2,837·50	46	1·621			
52	2,654·70	51	1·921			
53	2,624·00	40	1·524			
54	2,431·70	56	2·303			
55	2,201·50	43	1·953	15,211·50	357	2·3469
56	2,045·50	40	1·956			
57	1,890·00	36	1·905			
58	1,747·50	34	1·946			
59	1,624·00	30	1·847			
60	1,491·00	47	3·152			
61	1,291·00	39	3·021			
62	1,112·00	31	2·788			
63	965·00	32	3·316			
64	844·00	25	2·962			
65	773·50	26	3·361	3,800·50	216	5·6835
66	657·00	42	6·393			
67	547·00	30	5·484			
68	454·00	16	3·524			
69	384·50	24	6·242			
70	321·00	16	4·984			
71	236·00	23	9·746			
72	174·00	14	8·046			
73	140·	11	7·857			
74	113·50	14	12·335			
75	99·	9	9·091	358·00	39	10·8939
76	71·50	9	12·587			
77	52·00	8	15·385			
78	40·50	2	4·938			
79	32·00	4	12·500			
80	24·00	4	16·667			
81	15·00	...	...	
82	10·00	1	10·			
83	5·50	1	18·182			
84	4·00	...	...	
85	3·00	1	33·333			
86	1·50	...	...	
87	...	...	...
	115,469·59	1682		115,469·59	1682	1·4569

FEMALES.—(F.) MORTALITY EXPERIENCE of
 1831 to 1864, being a period of Thirty-three
 LIVES AT RISK; (2.) THE DEATHS;

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
1	1131'5	4	3535
2	...	...	...
3	...	...	...
4	...	...	...
5	2'	...	...	
6	2'	...	...	
7	5'	...	...	
8	9'	...	...	
9	17'	...	...	
10	24'	...	...	
11	33'	...	...	
12	39'	...	...	
13	49'	...	...	
14	57'	...	...	
15	65'	...	...	
16	73'5	...	...	
17	79'5	...	...	
18	82'	...	...	
19	89'	1	1'124	1841'	20	1'0864
20	91'	...	...	
21	97'	...	...	
22	96'5	1	1'036			
23	105'	1	'952			
24	116'	1	'862			
25	122'	1	'820			
26	128'	...	...	
27	145'	1	'690			
28	157'	2	1'274			
29	170'	...	...	
30	188'5	2	1'061			
31	218'5	3	1'373			
32	220'	7	3'182			
33	239'5	3	1'253			
34	252'5	1	'396			
35	259'	4	1'544	2927'4	34	1'1614
36	273'65	4	1'462			
37	293'25	2	'682			
38	291'5	4	1'372			
39	299'5	2	'668			
40	304'	4	1'316			
41	299'5	1	'334			
42	302'	7	2'318			
43	301'	2	'664			
44	304'	4	1'316			
C. forward,	5,899'9	58		5899'9	58	

THE SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY, from
 Years ; exhibiting at each Year of Age—(1.) THE
 (3.) THE MORTALITY PER CENT.

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
B. forward,	5,899·9	58	...	5899·9	58	...
45	395·	4	1·311	2,763·75	40	1·4473
46	288·	3	1·042			
47	286·5	5	1·745			
48	287·	4	1·394			
49	275·5	5	1·815			
50	276·5	2	·723			
51	275·	2	·727			
52	268·5	7	2·607			
53	259·25	4	1·543			
54	242·5	4	1·649			
55	241·5	3	1·242	1,860·2	36	1·9353
56	239·5	5	2·088			
57	227·2	7	3·081			
58	216·	1	·463			
59	201·5	6	2·978			
60	184·5	1	·542			
61	160·5	4	2·492			
62	141·5	2	1·413			
63	129·5	4	3·089			
64	118·5	3	2·532			
65	105·5	2	1·896	582·	30	5·1546
66	91·5	3	3·279			
67	80·	2	2·500			
68	70·5	6	8·511			
69	57·	4	7·018			
70	46·5	5	10·753			
71	38·5	2	5·195			
72	37·	1	2·703			
73	30·	4	13·333			
74	25·5	1	3·922			
75	24·	1	4·167	97·	9	9·2784
76	18·	3	16·667			
77	11·	1	9·091			
78	8·5	1	11·765			
79	8·	...	...	
80	7·	1	14·286			
81	6·5	...	...	
82	4·	...	...	
83	3·	1	33·333			
84	3·	..	...	
85	2·	1	50·			
86	1·	...	...	
87	1·	...	...	
	11,202·85	173		11,202·85	173	1·5442

PERSONS.—(P.) MORTALITY EXPERIENCE of
1831 to 1864, being a period of Thirty-three
LIVES AT RISK; (2.) THE DEATHS;

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
1	4,903·96	39	·7953
2	...	...	...
3	...	...	...
4	...	...	...
5	2·	...	...	
6	4·	...	...	
7	8·	...	...	
8	21·	...	...	
9	38·	...	...	
10	61·	...	..	
11	82·	...	...	
12	95·	1	1·053			
13	123·55	1	·809			
14	147·	...	...	
15	174·5	...	...	
16	207·5	...	...	
17	237·1	3	1·265	25,115·73	186	·7406
18	269·	...	...	
19	319·5	2	·626			
20	375·55	6	1·598			
21	455·41	1	·220			
22	580·75	5	·861			
23	753·4	5	·664			
24	949·7	15	1·579			
25	1193·61	8	·670			
26	1463·65	10	·683			
27	1780·5	14	·786			
28	2192·1	12	·547			
29	2409·7	15	·622			
30	2721·92	23	·845			
31	2999·1	23	·767			
32	3217·1	25	·777			
33	3499·65	30	·857			
34	3638·4	26	·715			
35	3838·3	39	1·016	41,566·45	430	1·0345
36	4017·85	35	·871			
37	4131·85	47	1·138			
38	4207·65	33	·784			
39	4278·75	46	1·075			
40	4326·6	40	·925			
41	4300·3	59	1·372			
42	4209·25	48	1·140			
43	4150·3	32	·771			
44	4105·6	51	1·242			
C. forward,	71,586·14	655		71,586·14	655	

THE SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY, from
 Years ; exhibiting at each Year of Age--(1.) THE
 (3.) THE MORTALITY PER CENT.

AGE.	Lives at Risk.	Died.	Mortality per cent.	In Decennial Periods.		
				Lives at Risk.	Died.	Mortality.
B. forward,	71,586·14	655	...	71,586·14	655	
45	4,020·65	39	·970	}	33,177·10	513
46	3,833·35	48	1·252			
47	3,701·	44	1·189			
48	3,375·9	63	1·866			
49	3,392·55	54	1·592			
50	3,260·5	55	1·687			
51	3,112·5	48	1·542			
52	2,923·2	58	1·984			
53	2,883·25	44	1·526			
54	2,674·2	60	2·244			
55	2,443·	46	1·883	}	17,071·7	393
56	2,285·	45	1·969			
57	2,117·2	43	2·031			
58	1,963·5	35	1·783			
59	1,825·5	36	1·972			
60	1,675·5	48	2·865			
61	1,451·5	43	2·963			
62	1,253·5	33	2·633			
63	1,094·5	36	3·289			
64	962·5	28	2·909			
65	879·	28	3·185	}	4,382·5	246
66	748·5	45	6·012			
67	627·	32	5·104			
68	524·5	22	4·194			
69	441·5	28	6·342			
70	367·5	21	5·714			
71	274·5	25	9·107			
72	211·	15	7·109			
73	170·	15	8·824			
74	139·	15	10·791			
75	123·	10	8·130	}	455·	48
76	89·5	12	13·408			
77	63·	9	14·286			
78	49·	3	6·122			
79	40·	4	10·			
80	31·	5	16·129			
81	21·5	...	...	
82	14·	1	7·143			
83	8·5	2	23·529			
84	7·	...	...	
85	5·	2	40·	}		10 5494
86	2·5	...	...	
87	1·	...	...	
	126,672·44	1855		126,672·44	1855	1·4644

PERSONS.—(I.) MORTALITY EXPERIENCE of THE
being a period of Thirty-three Years; exhibiting THE
AS MEASURED BY THE ANNUAL RATE OF

DISEASES.	Number of Lives at					
	4,903·96.		25,115·73.		41,566·45.	
	Age under 25.		25 and under 35		35 and under 45.	
	No. of Deaths	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.
All Causes,	39	·7953	186	·7406	430	1·0345
Class I.—Epidemic, etc.,	8	·1631	29	·1155	72	·1732
Small-pox, . . . .	...	...	1	·0040	2	·0048
Scarlatina,	1	·0204	1	·0040	6	·0144
Diarrhœa, . . . .	...	...	1	·0040	2	·0048
Dysentery,	1	·0204	2	·0080	6	·0144
Cholera, . . . .	...	...	2	·0080	4	·0096
Influenza, . . . .	...	...	...	...	...	...
Fever,	6	·1223	18	·0717	48	·1155
Erysipelas, . . . .	...	...	4	·0159	4	·0096
Class II.—Of Uncertain Seat,	...	...	6	·0239	23	·0553
Inflammation, . . . .	...	...	2	·0080	...	...
Hæmorrhage, . . . .	...	...	...	...	1	·0024
Dropsy, . . . .	...	...	...	...	3	·0072
Abscess, . . . .	...	...	2	·0080	4	·0096
Mortification, . . . .	...	...	...	...	...	...
Purpura, . . . .	...	...	...	...	1	·0024
Carcinoma, . . . .	...	...	2	·0080	5	·0120
Tumour, . . . .	...	...	...	...	1	·0024
Gout, . . . .	...	...	...	...	2	·0048
Atrophy, . . . .	...	...	...	...	1	·0024
Debility, . . . .	...	...	...	...	3	·0072
Sudden Death, . . . .	...	...	...	...	2	·0048
Class III.—Of Nervous System,	9	·1835	28	·1115	91	·2189
Cephalitis,	6	·1223	4	·0160	6	·0144
Apoplexy, . . . .	...	...	6	·0239	26	·0625
Paralysis, . . . .	...	...	1	·0040	6	·0144
Tetanus, . . . .	...	...	1	·0040	...	...
Epilepsy, . . . .	...	...	4	·0160	10	·0241
Insanity, . . . .	...	...	1	·0040	1	·0024
Delirium Tremens, etc., .	1	·0204	7	·0279	12	·0289
Disease of Brain,	2	·0408	4	·0160	30	·0722
Class IV.—Of Respiratory Syst.,	15	·3059	79	·3145	118	·2839
Laryngitis, . . . .	...	...	1	·0040	1	·0024
Quinsey,	1	·0204	...	...	2	·0048
Bronchitis, . . . .	...	...	4	·0160	9	·0217
Pleurisy, . . . .	...	...	2	·0080	2	·0048
Pneumonia,	2	·0408	4	·0160	15	·0361
Hydrothorax, . . . .	...	...	...	...	2	·0048
Asthma, . . . .	...	...	...	...	...	...
Consumption,	12	·2447	60	·2389	67	·1612
Disease of Lungs, . . . .	...	...	8	·0319	20	·0481

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY, from 1831 to 1864,
INTENSITY OF EACH DISEASE AND GROUP OF DISEASES,
MORTALITY during Seven Decennial Periods of Life.

Risk from 1831 to 1864.

33,177·10.		17,071·70.		4,382·50.		455·00.		126,672·44.	
45 and under 55.		55 and under 65.		65 and under 75.		75 and upwards.		All Ages.	
No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.
513	1·5462	393	2·3020	246	5·6132	48	10·5494	1855	1·4644
56	·1688	42	·2460	18	·4107	4	·8791	229	·18078
1	·0030	1	·0059	...	...	...	...	5	·00395
...	...	...	...	...	...	...	...	8	·00632
2	·0060	5	·0293	3	·0685	...	...	13	·01026
6	·0181	2	·0117	4	·0913	3	·6593	24	·01895
5	·0151	8	·0469	3	·0685	...	...	22	·01737
1	·0030	6	·0351	1	·0228	...	...	8	·00632
34	·1025	16	·0937	4	·0913	...	...	126	·09947
7	·0211	4	·0234	3	·0685	1	·2198	23	·01816
54	·1628	31	·1816	33	·7530	12	2·6374	159	·12552
...	...	1	·0059	...	...	...	...	3	·00237
1	·0030	2	·0117	...	...	...	...	4	·00316
14	·0422	2	·0117	6	·1369	2	·4396	27	·02131
3	·0090	...	...	...	...	...	...	9	·00710
2	·0060	5	·0293	1	·0228	1	·2198	9	·00710
...	...	...	...	...	...	...	...	1	·00079
24	·0723	13	·0761	10	·2282	...	...	54	·04263
2	·0060	1	·0059	...	...	...	...	4	·00316
1	·0030	...	...	1	·0228	...	...	4	·00316
2	·0060	...	...	...	...	...	...	3	·00237
2	·0060	5	·0293	15	·3423	9	1·9780	34	·02684
3	·0090	2	·0117	...	...	...	...	7	·00553
105	·3165	85	·4980	67	1·5288	5	1·0989	390	·30788
3	·0090	1	·0059	1	·0228	...	...	21	·01658
39	·1175	24	·1406	18	·4107	3	·6593	116	·09157
12	·0362	24	·1406	28	·6389	2	·4396	73	·05763
2	·0060	...	...	...	...	...	...	3	·00237
10	·0301	2	·0117	2	·0456	...	...	28	·02210
3	·0090	3	·0176	...	...	...	...	8	·00631
5	·0151	5	·0293	...	...	...	...	30	·02368
31	·0934	26	·1523	18	·4107	...	...	111	·08763
105	·3165	72	·4217	31	·7074	9	1·9780	429	·33867
...	...	...	...	...	...	...	...	2	·00158
3	·0090	...	...	...	...	...	...	6	·00474
21	·0633	18	·1054	8	·1825	7	1·5385	67	·05289
2	·0060	1	·0059	1	·0228	...	...	8	·00632
20	·0603	15	·0879	12	·2738	2	·4396	70	·05526
3	·0090	6	·0351	2	·0456	...	...	13	·01026
...	...	1	·0059	2	·0456	...	...	3	·00237
47	·1417	19	·1113	5	·1141	...	...	210	·16578
9	·0271	12	·0703	1	·0228	...	...	50	·03947

PERSONS.—(I.) MORTALITY EXPERIENCE—

DISEASES.	Number of Lives at					
	4,903 96.		25,115 73.		41,566 45.	
	Age under 25.		25 and under 35.		35 and under 45.	
	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.
Class V.—Of Circulatory Syst.,	2	·0408	8	·0319	33	·0794
Pericarditis,	2	·0048
Aneurism,	4	·0160	9	·0217
Disease of Heart, . .	2	·0408	4	·0160	22	·0529
Class VI.—Of Digestive System,	5	·1020	21	·0836	36	·0866
Gastritis and Enteritis, .	2	·0408	3	·0119	2	·0048
Peritonitis,	2	·0080	3	·0072
Ascites,	1	·0040	2	·0048
Ulceration of Stomach, etc.,	1	·0204	2	·0080	2	·0048
Hernia,	1	·0024
Colic and Ileus,	1	·0040	2	·0048
Intussuseption,
Stricture of Bowels,	2	·0048
Hæmatemesis,	1	·0024
Disease of Stomach, etc.,	3	·0119	9	·0217
Disease of Pancreas,
Hepatitis,	2	·0080	1	·0024
Jaundice,	1	·0204	...	...	1	·0024
Disease of Liver, . . .	1	·0204	7	·0279	10	·0241
Class VII.—Of Urinary Organs,	7	·0279	15	·0361
Nephritis,
Ischuria,
Diabetes,	2	·0080	1	·0024
Cystitis,
Stone,
Stricture,	1	·0024
Disease of Kidneys,	5	·0199	13	·0313
Class VIII.—Of Generative Syst.,	2	·0080	3	·0072
Childbirth,	1	·0040	3	·0072
Ovarian Dropsy,	1	·0040	...	...
Disease of Uterus,
Class IX.—Of Locom. Organs,	10	·0241
Arthritis,
Rheumatism,	7	·0168
Disease of Joints,	2	·0048
Disease of Bones,	1	·0024
Class X.—Of Integuments, etc.,	2	·0048
Carbuncle,	1	·0024
Fistula in Ano,	1	·0024
Skin Disease,
Class XI.—Violent Deaths,	6	·0239	26	·0626
Class XII.—Causes Unknown,	1	·0024

INTENSITY OF DISEASES—*continued.*

Risk from 1831 to 1864.

33,177·10.		17,071·70.		4,382·50.		455·00.		126,672·44.	
45 and under 55.		55 and under 65.		65 and under 75.		75 and upwards.		All Ages.	
No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.	No. of Deaths.	Mortality per cent.
58	·1748	55	·3222	57	1·3006	7	1·5385	220	·17368
3	·0090	1	·0059	...	...	...	...	6	·00474
9	·0271	4	·0234	1	·0228	...	...	27	·02131
46	·1386	50	·2929	56	1·2778	7	1·5385	187	·14763
71	·2140	58	·3397	24	·5476	5	1·0989	220	·17368
6	·0181	4	·0234	...	...	...	...	17	·01342
2	·0060	2	·0117	1	·0228	1	·2198	11	·00868
...	...	2	·0117	...	...	...	...	5	·00395
5	·0151	3	·0176	...	...	1	·2198	14	·01105
...	...	...	...	...	...	...	...	1	·00079
1	·0030	4	·0234	4	·0913	...	...	12	·00947
...	...	...	...	1	·0228	...	...	1	·00079
2	·0060	1	·0059	1	·0228	...	...	6	·00474
2	·0060	4	·0234	...	...	...	...	7	·00553
10	·0301	13	·0761	7	·1597	1	·2198	43	·03395
...	...	1	·0059	...	...	...	...	1	·00079
3	·0090	2	·0117	1	·0228	...	...	9	·00710
2	·0060	2	·0117	1	·0228	...	...	7	·00553
38	·1145	20	·1172	8	·1825	2	·4396	86	·06789
34	·1025	29	·1699	11	·2510	3	·6593	99	·07815
3	·0090	1	·0059	...	...	...	...	4	·00316
1	·0030	1	·0059	...	...	...	...	2	·00158
3	·0090	3	·0176	1	·0228	...	...	10	·00789
...	...	4	·0234	6	·1369	2	·4396	12	·00947
2	·0060	1	·0059	1	·0228	...	...	4	·00316
1	·0030	2	·0117	1	·0228	1	·2198	6	·00474
24	·0723	17	·0996	2	·0456	...	...	61	·04816
2	·0060	...	...	1	·0228	...	...	8	·00632
...	...	...	...	...	...	...	...	4	·00316
1	·0030	...	...	1	·0228	...	...	3	·00237
1	·0030	...	...	...	...	...	...	1	·00079
4	·0121	2	·0117	...	...	...	...	16	·01263
...	...	1	·0059	...	...	...	...	1	·00079
1	·0030	1	·0059	...	...	...	...	9	·00710
2	·0060	...	...	...	...	...	...	4	·00316
1	·0030	...	...	...	...	...	...	2	·00158
1	·0030	5	·0293	2	·0456	...	...	10	·00789
1	·0030	4	·0234	1	·0228	...	...	7	·00553
...	...	1	·0059	...	...	...	...	2	·00158
...	...	...	...	1	·0228	...	...	1	·00079
20	·0603	13	·0761	2	·0456	3	·6593	70	·05526
3	·0090	1	·0059	...	...	...	...	5	·00395

